

To Supply Leftover Food to Poor

College: 7155 - PSG Institute of Technology and Applied Research

Team ID: NM2024TMID00582

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1. Project Overview

This project is focused on Food Connect, designed to address the challenge of efficiently collecting and distributing surplus food to those in need. The goal is to deliver a comprehensive solution by leveraging Salesforce's platform to manage food collection points, volunteers, and distribution tasks. Through this project, we aim to enhance operational efficiency, transparency, and data accuracy in food distribution efforts, supporting the long-term goals of providing sustainable food access and reducing food waste.

2. Objectives

Business Goals:

To improve the efficiency and transparency of surplus food collection and distribution processes by leveraging Salesforce. The project aims to reduce food

waste, support sustainable food access for the needy, and foster community collaboration through organized food logistics.

Specific Outcomes:

- Streamlined collection and distribution workflow, reducing operational overhead.
- A user-friendly dashboard to track drop-off points, volunteers, and food distribution progress.
- Accurate data reporting on food collection, distribution, and volunteer engagement.
- Increased accessibility to food resources for underserved communities.

3. Salesforce Key Features and Concepts Utilized

This project leverages key Salesforce functionalities and concepts to create a seamless and effective food distribution system:

1. Custom Objects and Relationships
 - Created custom objects like Venue, Drop off Point, Task, Volunteer, and Execution Details to organize and track all essential data.
 - Defined lookup relationships between objects to establish clear connections, ensuring data consistency and easy access.
2. Tabs and Lightning App (Food Connect)
 - Set up tabs for each object for easy navigation within the Food Connect Lightning app.
 - Customized the Lightning app for streamlined access, branding, and organization.
3. Screen Flows
 - Built a Venue Form using Screen Flow to capture important venue details, including location coordinates, for precise drop-off management.
4. Apex Triggers

- Developed Apex triggers to automate tasks, such as calculating the distance between venues and drop-off points, enabling optimized logistics and efficient route planning.

5. Users and Public Groups

- Created specific users and public groups (e.g., Iksha Foundation, NSS, StreetCos) for effective team collaboration and data access control.

6. Reports and Dashboards

- Designed custom report types and reports to provide insights into volunteer activity, food distribution status, and drop-off points.
- Created a dashboard integrated with the homepage to offer real-time visibility into project metrics and progress.

7. Homepage Integration

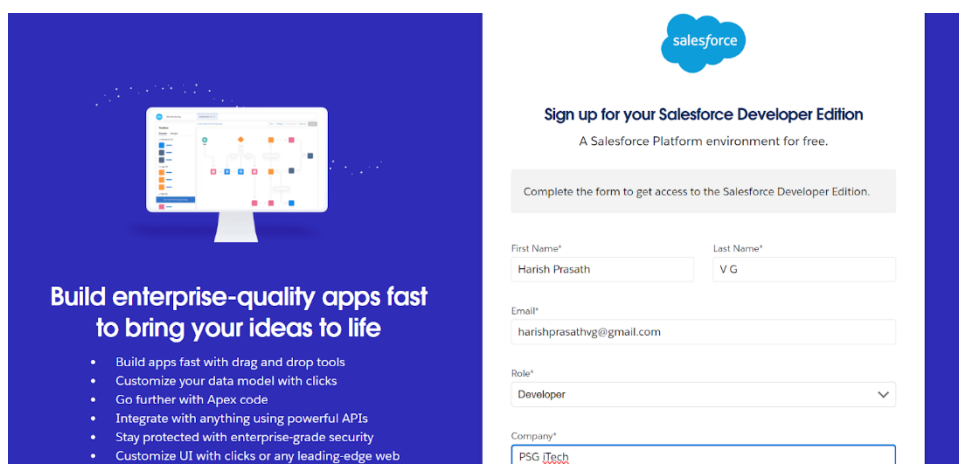
- Integrated the dashboard on the homepage for centralized data monitoring, allowing stakeholders to track the project's impact at a glance.

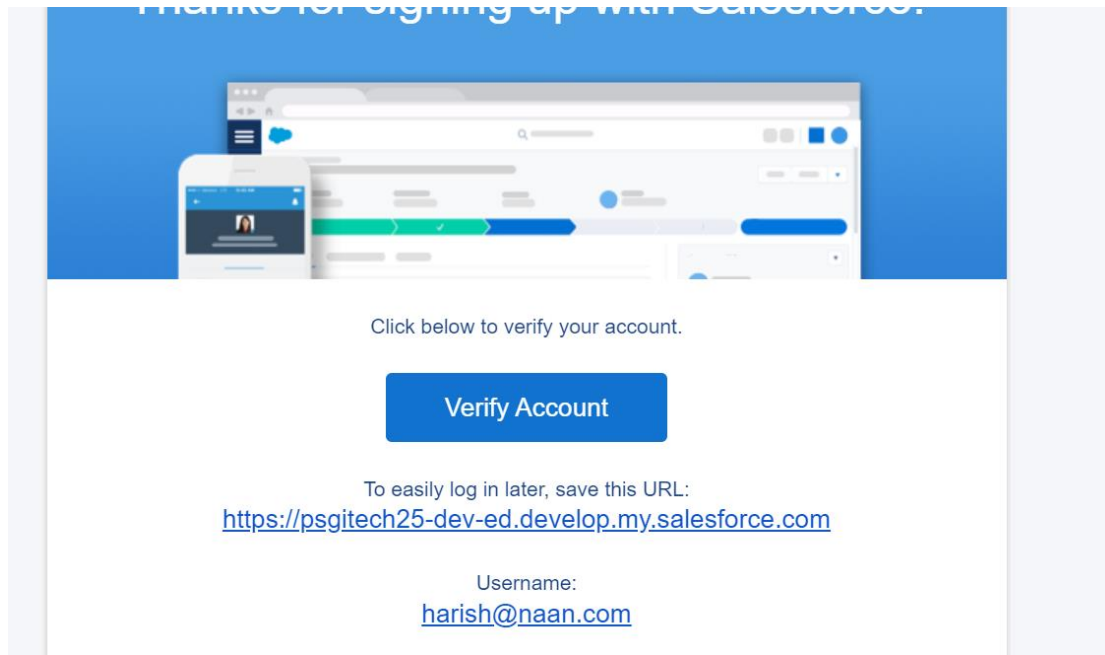
These Salesforce features collectively ensure that the project operates with high efficiency, transparency, and data-driven decision-making to maximize food distribution effectiveness.

4. Detailed Steps to Solution Design

1. Created Salesforce Developer Account

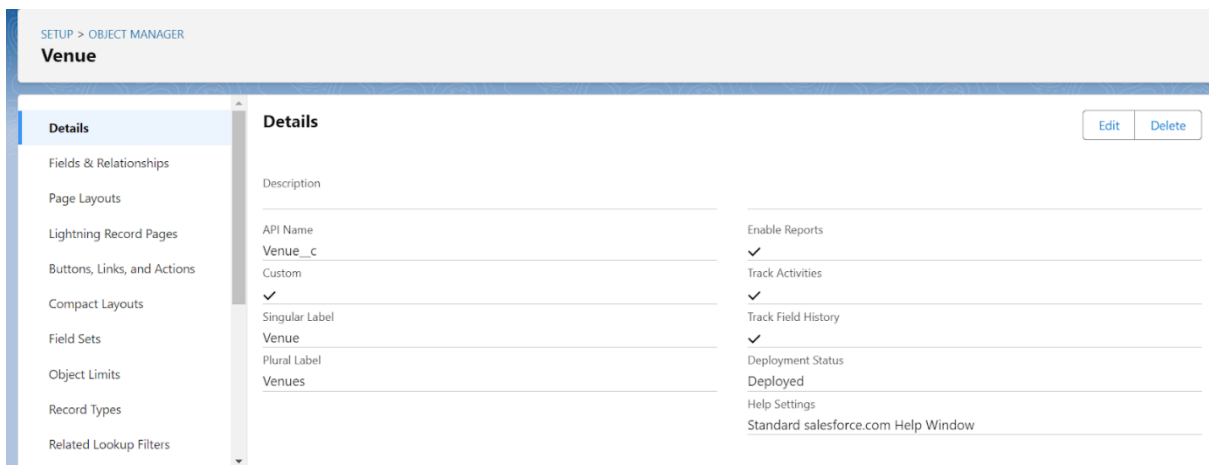
- We began by creating a Salesforce Developer Account to access a development environment where we could build and customize the application. This setup provided the necessary tools to design, test, and deploy the application.





2. Defined Objects

- Five primary objects—Venue, Drop off Point, Task, Volunteer, and Execution Details—were created in Object Manager.
- Each object was designed to store relevant data, such as location details in Venue, task information in Task, and volunteer records in Volunteer.



SETUP > OBJECT MANAGER

Drop-Off Point

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Details

Description

API Name

Drop_Off_Point__c

Custom

✓

Singular Label

Drop-Off Point

Plural Label

Drop-Off Points

Enable Reports

✓

Track Activities

✓

Track Field History

✓

Deployment Status

Deployed

Help Settings

Standard salesforce.com Help Window

EditDelete

SETUP > OBJECT MANAGER

Task

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Details

Description

API Name

Task__c

Custom

✓

Singular Label

Task

Plural Label

Tasks

Enable Reports

✓

Track Activities

✓

Track Field History

✓

Deployment Status

Deployed

Help Settings

Standard salesforce.com Help Window

EditDelete

SETUP > OBJECT MANAGER

Volunteer

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Details

Description

API Name

Volunteer__c

Custom

✓

Singular Label

Volunteer

Plural Label

Volunteers

Enable Reports

✓

Track Activities

✓

Track Field History

✓

Deployment Status

Deployed

Help Settings

Standard salesforce.com Help Window

EditDelete

SETUP > OBJECT MANAGER

Execution Detail

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Details

Description

API Name

Execution_Detail__c

Custom

✓

Singular Label

Execution Detail

Plural Label

Execution Details

Enable Reports

✓

Track Activities

✓

Track Field History

✓

Deployment Status

Deployed

Help Settings

Standard salesforce.com Help Window

EditDelete

3. Configured Tabs

- Corresponding tabs were created for each of the main objects to facilitate easy access within Salesforce.
- Tabs for Venue, Drop off Point, Task, Volunteer, and Execution Details were set up, allowing users to navigate directly to these data points and manage records effectively.

The image displays two screenshots of the Salesforce Setup interface, specifically the 'Custom Tabs' section. The top screenshot shows a single custom object tab for 'Venues' with an 'Airplane' icon. The bottom screenshot shows a list of five custom object tabs: 'Drop-Off Points' (Alarm clock icon), 'Execution Details' (Apple icon), 'Tasks' (Balls icon), 'Venues' (Airplane icon), and 'Volunteers' (Bank icon). Both screenshots include a 'Help for this Page' link and a 'New What Is This?' button.

Custom Object Tabs (Top Screenshot)

Action	Label	Tab Style	Description
Edit Del	Venues	Airplane	

Custom Object Tabs (Bottom Screenshot)

Action	Label	Tab Style	Description
Edit Del	Drop-Off Points	Alarm clock	
Edit Del	Execution Details	Apple	
Edit Del	Tasks	Balls	
Edit Del	Venues	Airplane	
Edit Del	Volunteers	Bank	

4. Developed the Lightning App

- We created a custom Lightning App named "Food Connect" to consolidate all project functionalities.
- The app was configured with specific branding, navigation items, and user access settings, which made it intuitive and easy to use for project participants.

New Lightning App

items that you add. Some navigation items are available only for phone or only for desktop. These items are dropped from the navigation bar when the app is viewed in a format that the item doesn't support.

Available Items

Selected Items

- Home
- Venues
- Drop-Off Points
- Tasks
- Execution Details
- Reports

Back
Next

Lightning Experience App Manager

[New Lightning App](#)
[New Connected App](#)

24 items • Sorted by App Name • Filtered by All appmenuitems - TabSet Type, App Type

App Name ↑	Developer Name	Description	Last Modified ...	Ap...	Vi...
5	Lightningport	Discover and manage business solutions designed to...	14/10/2024, 4:55 am	Lightning	✓
6	Business Rules Engi...	ExpressionSetConsole Create and maintain business rules that perform com...	14/10/2024, 4:58 am	Lightning	✓
7	Community	Community Salesforce CRM Communities	14/10/2024, 4:53 am	Classic	✓
8	Content	Content Salesforce CRM Content	14/10/2024, 4:53 am	Classic	✓
9	Data Manager	DataManager Use Data Manager to view limits, monitor usage, and...	14/10/2024, 4:53 am	Lightning	✓
10	Digital Experiences	SalesforceCMS Manage content and media for all of your sites.	14/10/2024, 4:53 am	Lightning	✓
11	FoodConnect	FoodConnect	14/10/2024, 9:05 am	Lightning	✓
12	Lightning Usage App	LightningInstrumen... View Adoption and Usage Metrics for Lightning Expe...	14/10/2024, 4:53 am	Lightning	✓
13	Marketing CRM Cla...	Marketing Track sales and marketing efforts with CRM objects.	14/10/2024, 4:53 am	Classic	✓
14	Platform	Platform The fundamental Lightning Platform	14/10/2024, 4:53 am	Classic	✓

5. Added Fields to Objects

- Custom fields were defined within each object to capture the necessary details:
 - Venue: Location, contact information, capacity.
 - Task: Type of food, quantity, delivery date, and assigned volunteers.
 - Volunteer: Availability, contact information, and skills.
 - Execution Details: Logs with dates, food types, and quantities distributed.
- Validation rules were also established to ensure data integrity, such as requiring fields like contact information and dates.

SetupHomeObject Manager

SETUP > OBJECT MANAGER

Volunteer

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Fields & Relationships

4 Items, Sorted by Field Label

Q Quick Find

NewDeleted FieldsField DependenciesSet History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Drop-Off Point	Drop_Off_Point__c	Master-Detail(Drop-Off Point)		✓
Last Modified By	LastModifiedById	Lookup(User)		
Volunteer Name	Name	Text(80)		✓

SETUP > OBJECT MANAGER

Venue

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Fields & Relationships

8 Items, Sorted by Field Label

Q Quick Find

NewDeleted FieldsField DependenciesSet History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Contact Email	Contact_Email__c	Email		
Contact Phone	Contact_Phone__c	Phone		
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Location	Location__c	Geolocation		
Owner	OwnerId	Lookup(User,Group)		✓
Venue Location	Venue_Location__c	Long Text Area(32768)		

SETUP > OBJECT MANAGER

Drop-Off Point

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Fields & Relationships

8 Items, Sorted by Field Label

Q Quick Find

NewDeleted FieldsField DependenciesSet History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Distance	Distance__c	Number(14, 4)		
distance calculation	distance_calculation__c	Formula (Number)		
Drop-Off Point Name	Name	Text(80)		✓
Last Modified By	LastModifiedById	Lookup(User)		
Location 2	Location_2__c	Geolocation		
Owner	OwnerId	Lookup(User,Group)		✓
State	State__c	Picklist		

SETUP > OBJECT MANAGER

Task

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Fields & Relationships

15 Items, Sorted by Field Label

Q Quick Find

NewDeleted FieldsField DependenciesSet History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Date	Date__c	Date		
Drop-Off Point	Drop_Off_Point__c	Lookup(Drop-Off Point)		✓
Feedback	Feedback__c	Long Text Area(32768)		
Food Category	Food_Category__c	Picklist (Multi-Select)		
Last Modified By	LastModifiedById	Lookup(User)		
Name of the Person	Name of the Person__c	Text(14)		

SETUP > OBJECT MANAGER

Task

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

Fields & Relationships

15 Items, Sorted by Field Label

Q Quick Find

NewDeleted FieldsField DependenciesSet History Tracking

Owner	OwnerId	Lookup(User,Group)	✓	
Phone	Phone__c	Phone		
Rating	Rating__c	Picklist		
Sponsored By	Sponsored_By__c	Lookup(Venue)	✓	
Task ID	Task_ID__c	Auto Number		
Task Name	Name	Text(80)	✓	
Venue	Venue__c	Lookup(Drop-Off Point)	✓	

SETUP > OBJECT MANAGER

Volunteer

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

Compact Layouts

Field Sets

Object Limits

Record Types

Related Lookup Filters

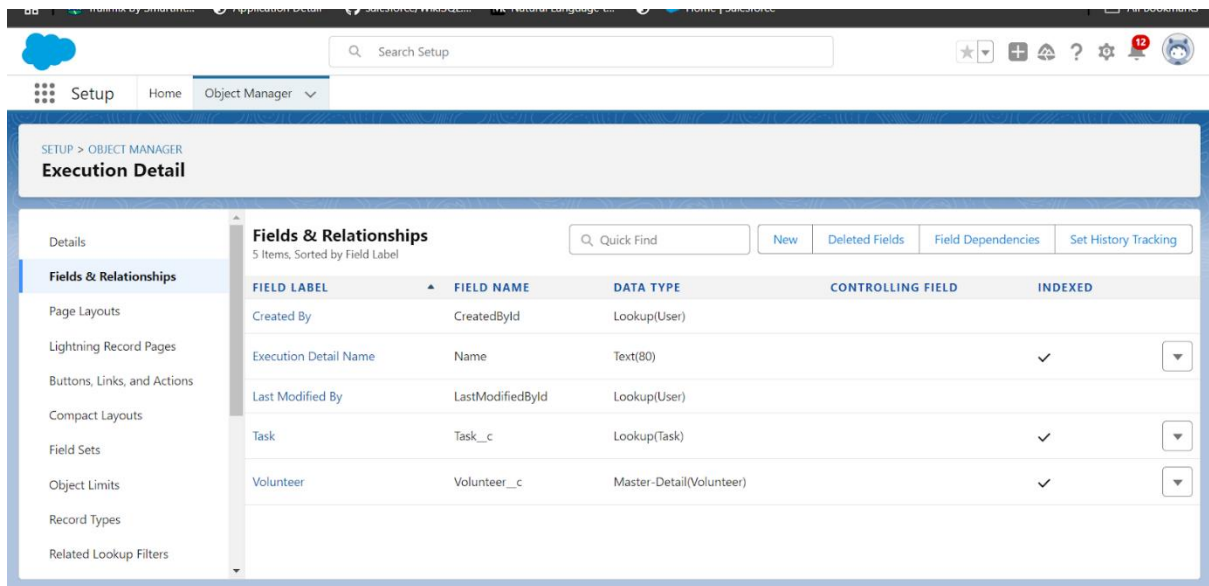
Fields & Relationships

12 Items, Sorted by Field Label

Q Quick Find

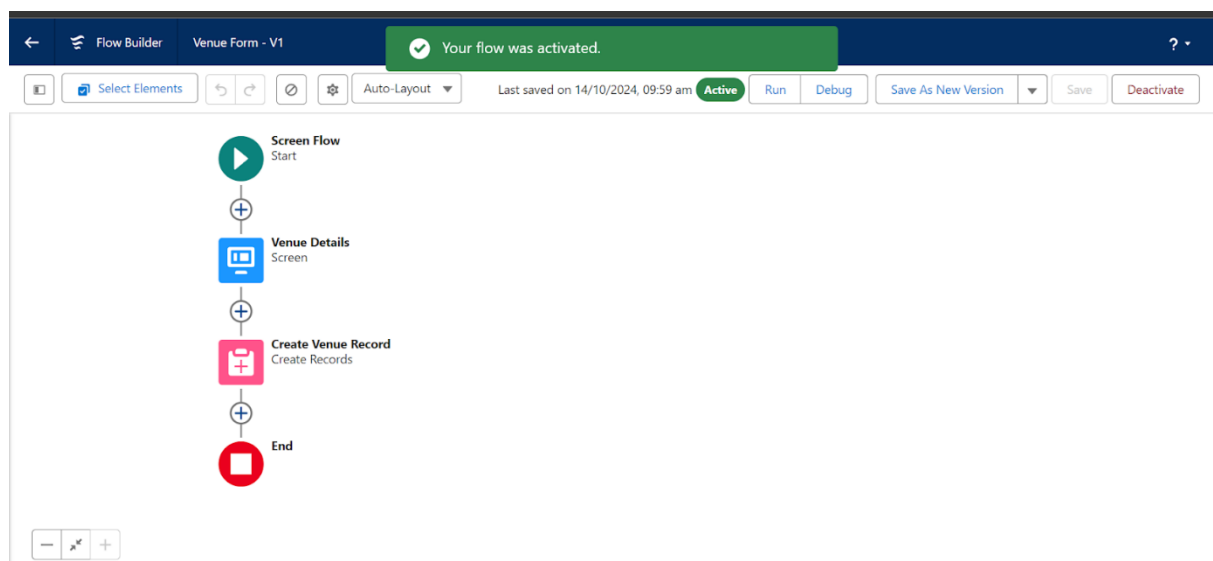
NewDeleted FieldsField DependenciesSet History Tracking

Date of Birth	Date_of_Birth__c	Date		
Drop-Off Point	Drop_Off_Point__c	Master-Detail(Drop-Off Point)	✓	
Email	Email__c	Email		
Gender	Gender__c	Picklist		
Last Modified By	LastModifiedById	Lookup(User)		
Volunteer ID	Volunteer_ID__c	Auto Number		
Volunteer Name	Name	Text(80)	✓	



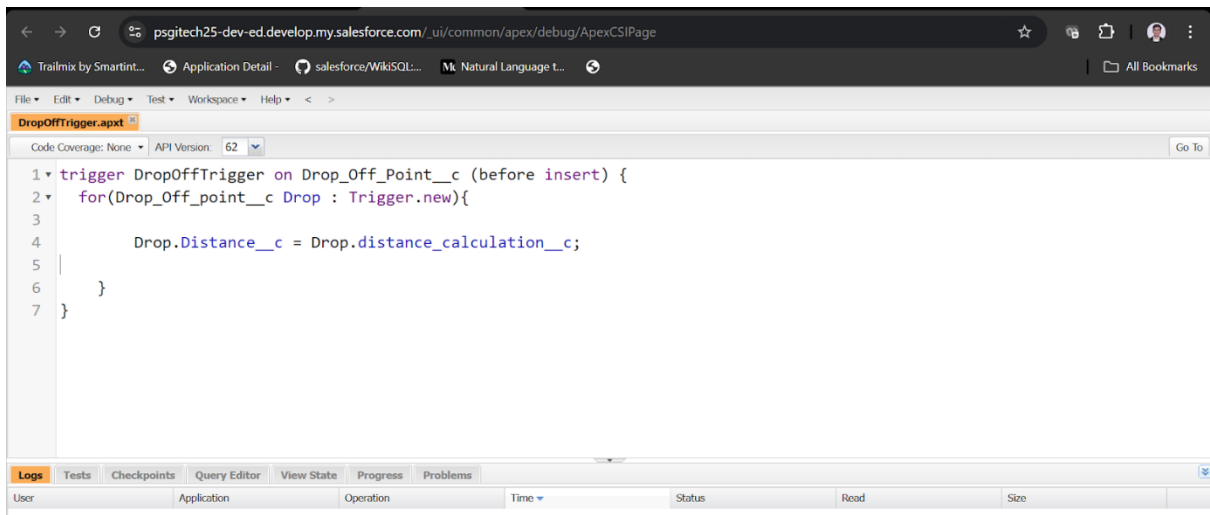
6. Created Flows for Data Entry

- We developed a Screen Flow called "Venue Form" to capture venue details in a step-by-step format.
- The flow included fields for venue name, email, phone, location, latitude, and longitude, making data entry faster and more accurate.



7. Implemented Apex Triggers

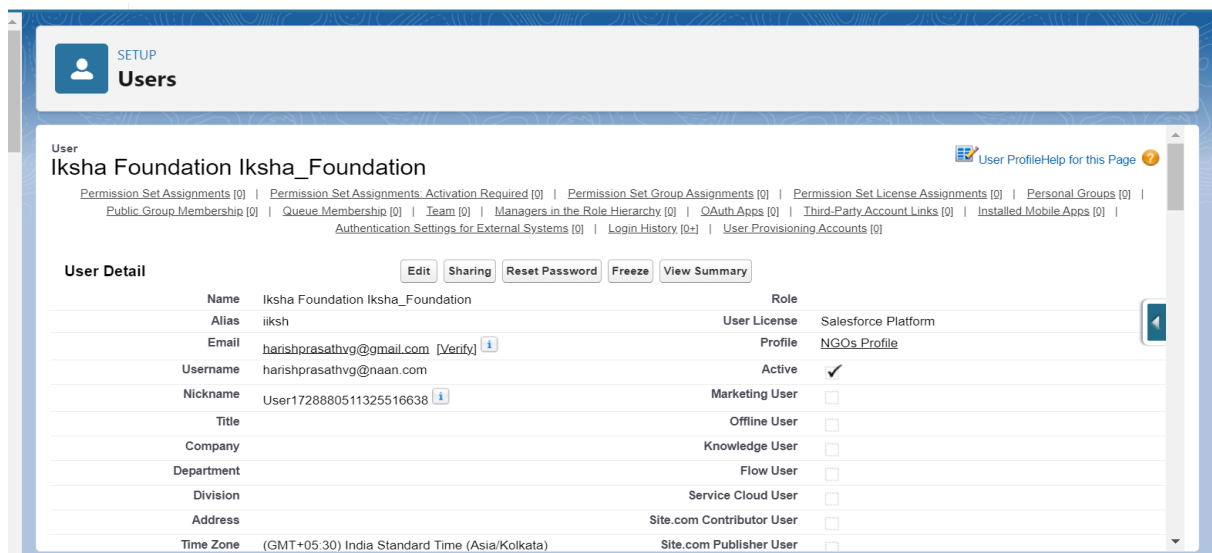
- An Apex Trigger was created to automate specific functions, including calculating the distance between drop-off points and venues.
- This automation facilitated optimized routing for volunteers and increased the system's efficiency by reducing manual calculations.



```
1 trigger DropOffTrigger on Drop_Off_Point__c (before insert) {
2   for(Drop_Off_point__c Drop : Trigger.new){
3
4       Drop.Distance__c = Drop.distance_calculation__c;
5
6   }
7 }
```

8. Created Users for Different Roles

- We added users representing various partner organizations, such as Iksha Foundation, NSS, and StreetCos.
- Each user was assigned a profile that granted appropriate access based on their role, ensuring secure and organized collaboration within the project.



SETUP Users

User: **Iksha Foundation Iksha_Foundation**

[Permission Set Assignments \(0\)](#) | [Permission Set Assignments: Activation Required \(0\)](#) | [Permission Set Group Assignments \(0\)](#) | [Permission Set License Assignments \(0\)](#) | [Personal Groups \(0\)](#) | [Public Group Membership \(0\)](#) | [Queue Membership \(0\)](#) | [Team \(0\)](#) | [Managers in the Role Hierarchy \(0\)](#) | [OAuth Apps \(0\)](#) | [Third-Party Account Links \(0\)](#) | [Installed Mobile Apps \(0\)](#) | [Authentication Settings for External Systems \(0\)](#) | [Login History \(0+\)](#) | [User Provisioning Accounts \(0\)](#)

User Detail [Edit](#) [Sharing](#) [Reset Password](#) [Freeze](#) [View Summary](#)

Name	Iksha Foundation Iksha_Foundation	Role	
Alias	iksh	User License	Salesforce Platform
Email	harishprasathvg@gmail.com Verify	Profile	NGOs Profile
Username	harishprasathvg@naan.com	Active	<input checked="" type="checkbox"/>
Nickname	User172880511325516638	Marketing User	<input type="checkbox"/>
Title		Offline User	<input type="checkbox"/>
Company		Knowledge User	<input type="checkbox"/>
Department		Flow User	<input type="checkbox"/>
Division		Service Cloud User	<input type="checkbox"/>
Address		Site.com Contributor User	<input type="checkbox"/>
Time Zone	(GMT+05:30) India Standard Time (Asia/Kolkata)	Site.com Publisher User	<input type="checkbox"/>

SETUP

Users

To get more licenses, use the Your Account app. [Let's Go](#)

View: All Users [Edit](#) | [Create New View](#)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Other All

New User

Reset Password(s)

Add Multiple Users

<input type="checkbox"/>	Action	Full Name ↑	Alias	Username	Role	Active	Profile
<input type="checkbox"/>	Edit	Chatter Expert	Chatter	chatty.00dwu000000asnhi2al.oins6t8jkput@chatter.salesforce.com		✓	Chatter Free User
<input type="checkbox"/>	Edit	Iksha_Foundation_Iksha.Foundation	iksh	harishprasathvg@naan.com		✓	NGOs Profile
<input type="checkbox"/>	Edit	Kumar_Dhanush	dkumar	dkumar@naan.com		✓	NGOs Profile
<input type="checkbox"/>	Edit	Kumar_Ram	rkumar	rkumar@naan.com		✓	NGOs Profile
<input type="checkbox"/>	Edit	User_Integration	integ	integration@00dwu000000asnhi2al.com		✓	Analytics Cloud Integration User
<input type="checkbox"/>	Edit	User_Security	sec	insightssecurity@00dwu000000asnhi2al.com		✓	Analytics Cloud Security User
<input type="checkbox"/>	Edit	V.G_Harish Prasath	HV.G	harish@naan.com		✓	System Administrator

New User

Reset Password(s)

Add Multiple Users

10. Established Public Groups

- Public groups, including Iksha, NSS, and StreetCos, were created to streamline data sharing and collaboration among the project's participants.
- These groups facilitated quick sharing of reports, records, and tasks, enhancing collaboration between different organizations involved.

SETUP

Public Groups

Group

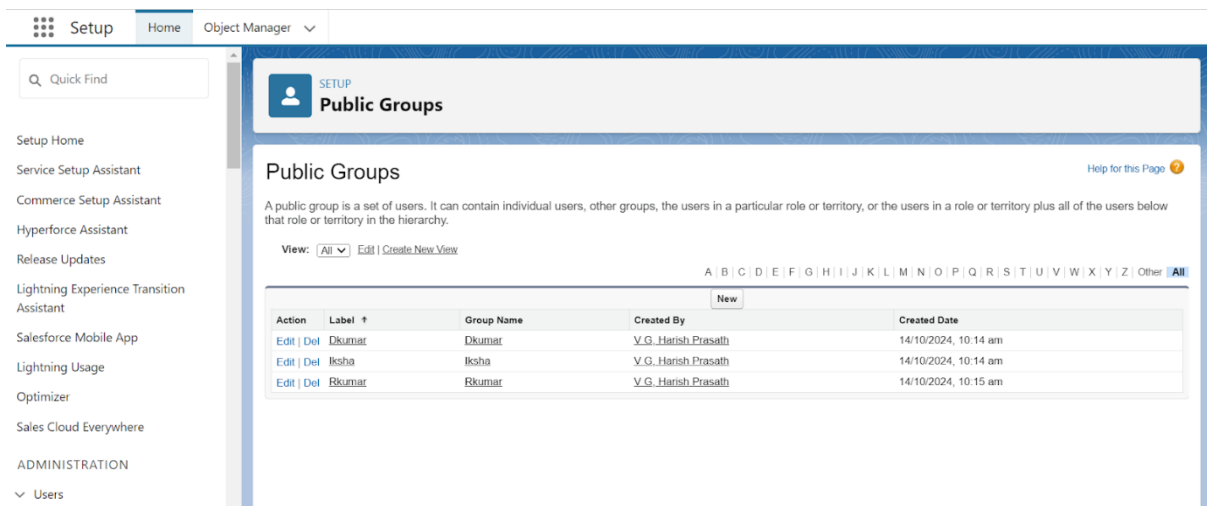
Iksha

[Edit](#) [Delete](#) [View Summary](#)

Label	iksha
Group Name	iksha
Grant Access Using Hierarchies	✓
Description	
Created By	dhanushkumar.y, 15/10/2024, 8:30 pm
Modified By	dhanushkumar.y, 15/10/2024, 8:30 pm

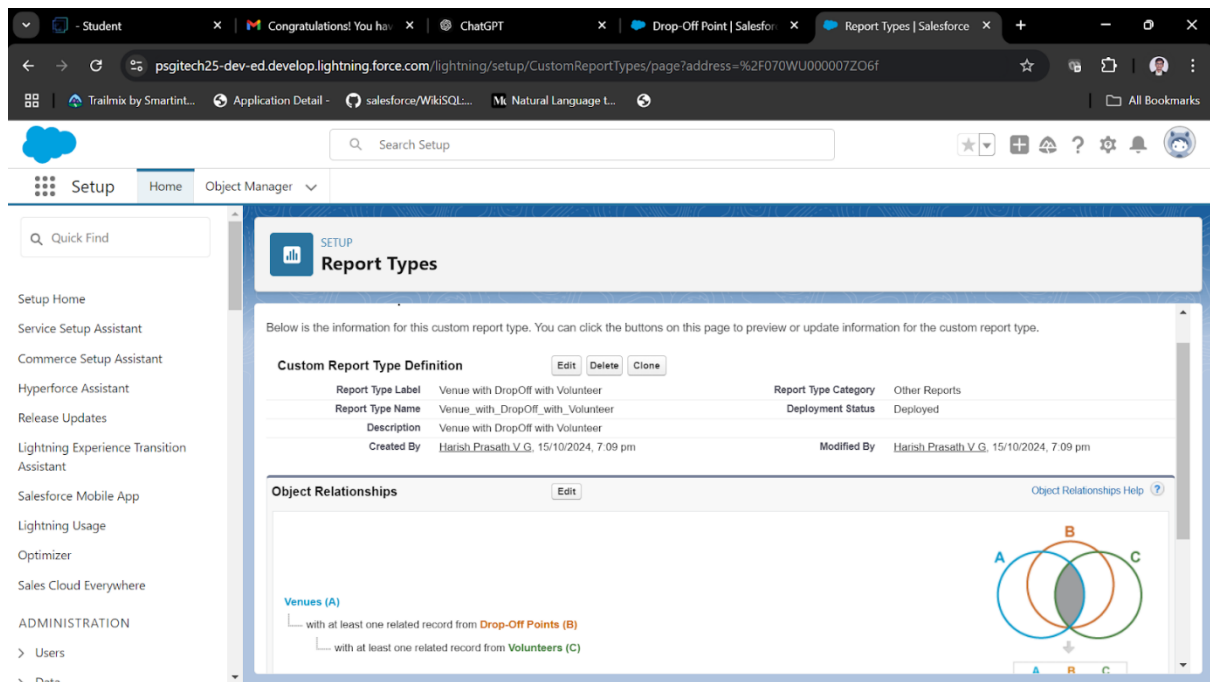
[View All Users](#)

Name	Type
Integration User	User
Security User	User
Iksha Foundation Iksha.Foundation	User



11. Defined Report Types

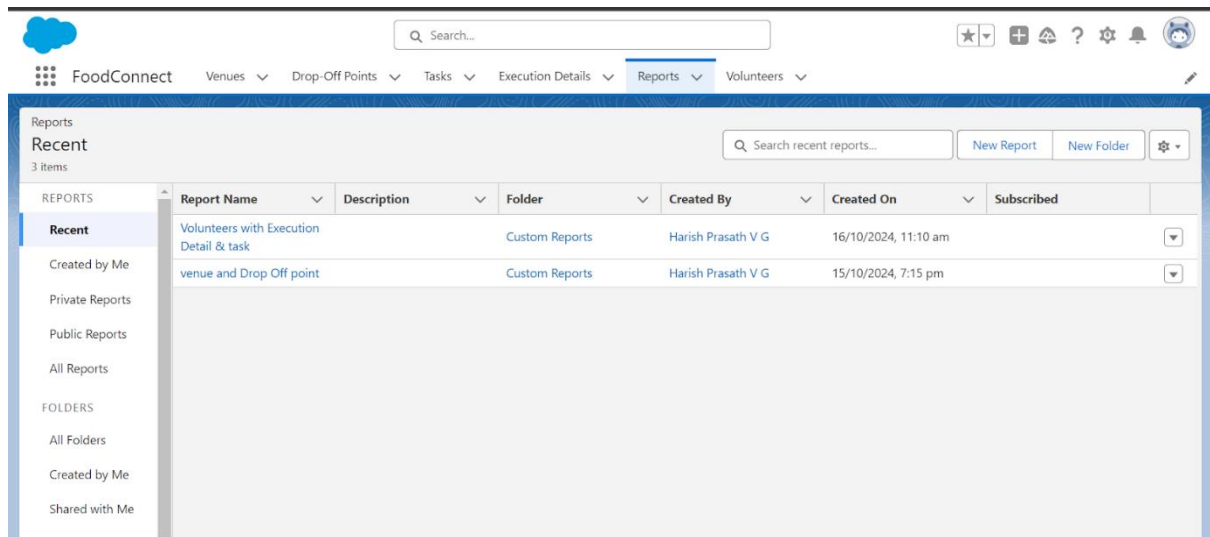
- Custom report types were created to structure data relationships, such as "Drop off Points with Volunteers with Execution Details."
- These report types were essential in providing a foundation for generating reports tailored to the project's needs.



12. Created Custom Reports

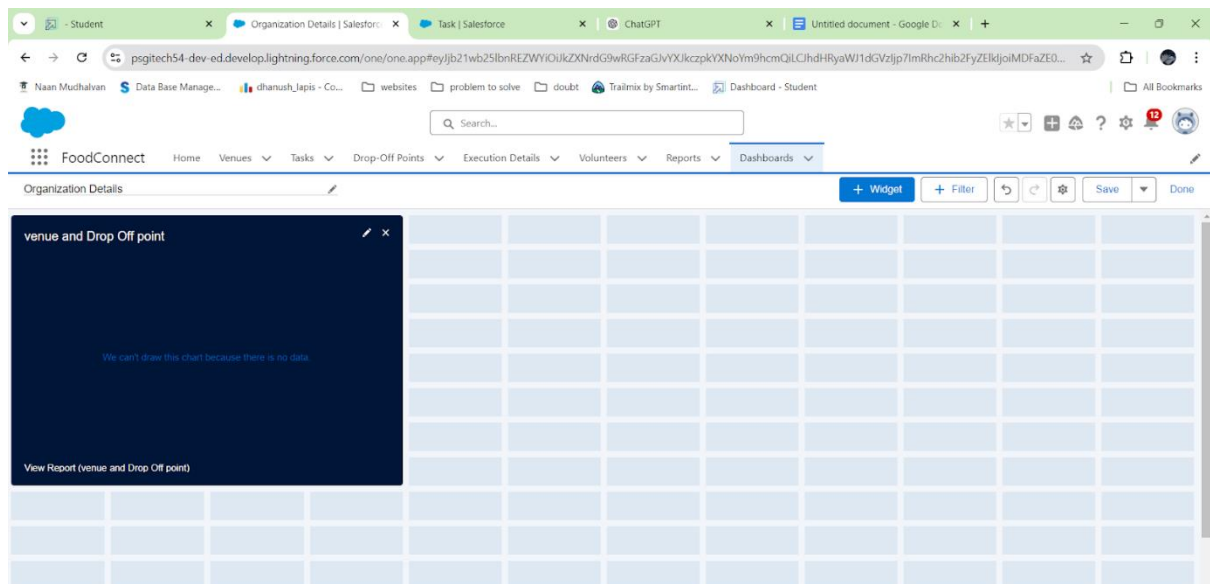
- We built several custom reports to monitor key performance metrics, such as volunteer activity, drop-off locations, and distribution data.

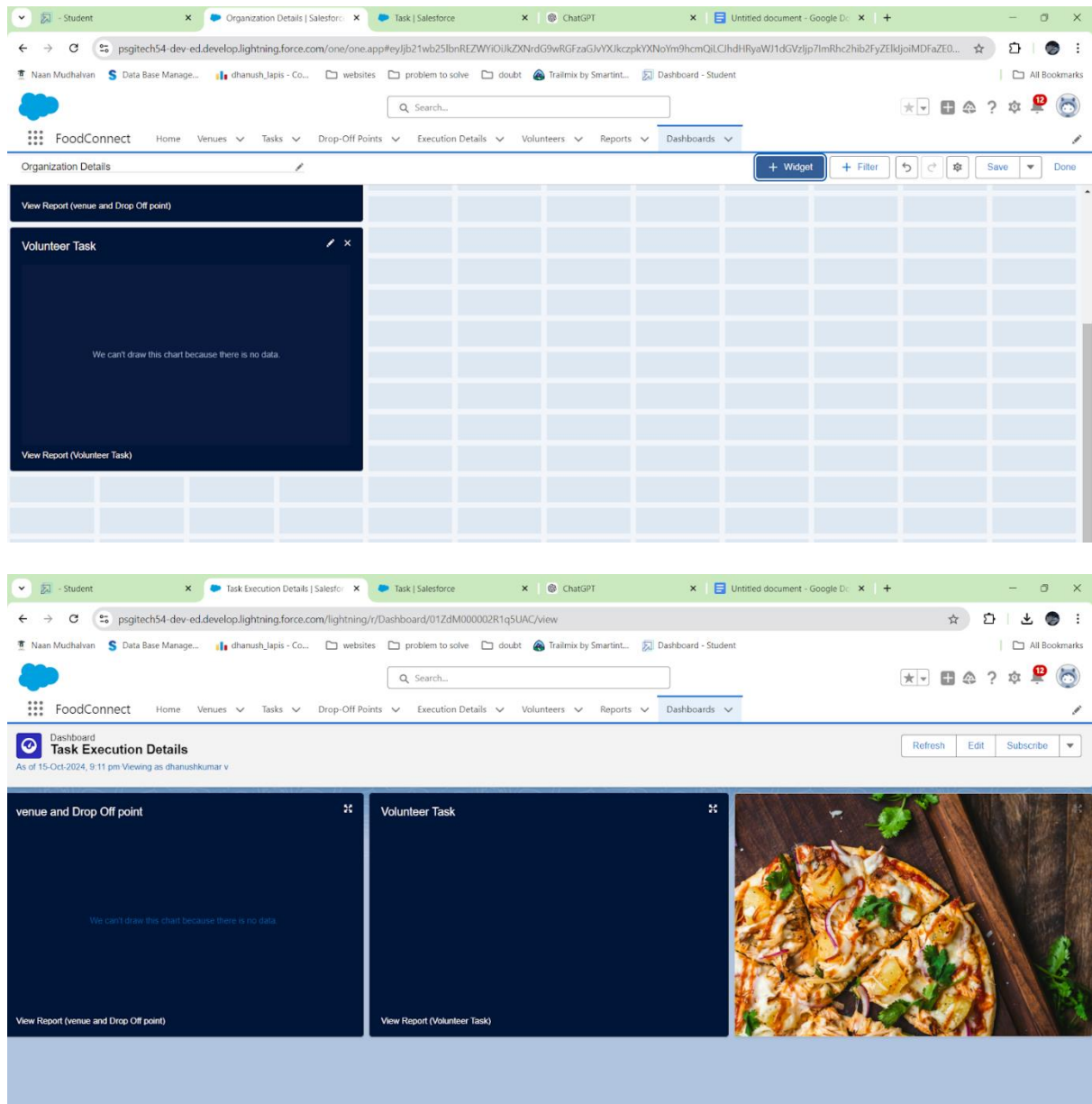
- Scheduled reports were configured to send regular updates to stakeholders, ensuring they were informed about project progress and performance.



13. Developed a Dashboard

- A centralized dashboard was designed to display project metrics, including the number of venues, volunteer activities, food quantities, and distributions.
- The dashboard provided a real-time overview, improving transparency and making data easily accessible for quick decision-making.





14. Configured Sharing Rules

- Sharing rules were set up to control record-level access, allowing specific groups to view or edit relevant data.
- This ensured that data privacy was maintained, while also enabling collaborative efforts where necessary.

Work Type Group Sharing Rules [New](#) [Recalculate](#) [Work Type Group Sharing Rules Help](#)

No sharing rules specified.

Drop-Off Point Sharing Rules [New](#) [Recalculate](#) [Drop-Off Point Sharing Rules Help](#)

⚠️ A sharing rule operation is currently in progress. The initiating user will receive an email when each operation finishes.

Action	Criteria	Shared With	Access Level
Edit Del	Drop-Off Point: Distance LESS THAN 15	Group: Iksha	Read Only
Edit Del	(Drop-Off Point: Distance GREATER THAN 15) AND (Drop-Off Point: Distance LESS OR EQUAL 30)	Group: NSS	Read Only
Edit Del	(Drop-Off Point: Distance GREATER THAN 30) AND (Drop-Off Point: Distance GREATER THAN 50)	Group: Street Cause	Read Only

Task Sharing Rules [New](#) [Recalculate](#) [Task Sharing Rules Help](#)

No sharing rules specified.

15. Integrated Dashboard with Homepage

- The dashboard was integrated into the Salesforce homepage to centralize access and enhance visibility.
- Key metrics, recent activities, and tasks were displayed on the homepage, making it convenient for team members to monitor the project's status at a glance.

FoodConnect Home Venues Tasks Drop-Off Points Execution Details Volunteers Reports Dashboards Setup

Dashboard: Task Execution Details1 [Open](#) [Refresh](#) [Subscribe](#)

As of 16-Oct-2024, 10:00 am Viewing as dhanushkumar v

venue and Drop Off point

Venue Na...	Drop-Off Point ...	Dis...
Hopes	Sulur	5.980
Neelambur	PSG iTech	5.589

[View Report \(venue and Drop Off point\)](#)

Volunteer Task

Record Count

1

[View Report \(Volunteer Task\)](#)

Venue Form

Venue Name

Email

Phone

Venue Location

Latitude

longitude

[Next](#)

5. Testing and Validation

i. Unit Testing (Apex Classes, Triggers)

Apex Trigger:

```
trigger DropOffTrigger on Drop_Off_Point__c (before insert) {
    for (Drop_Off_Point__c drop : Trigger.new) {
        drop.Distance__c = drop.distance_calculation__c;
    }
}
```



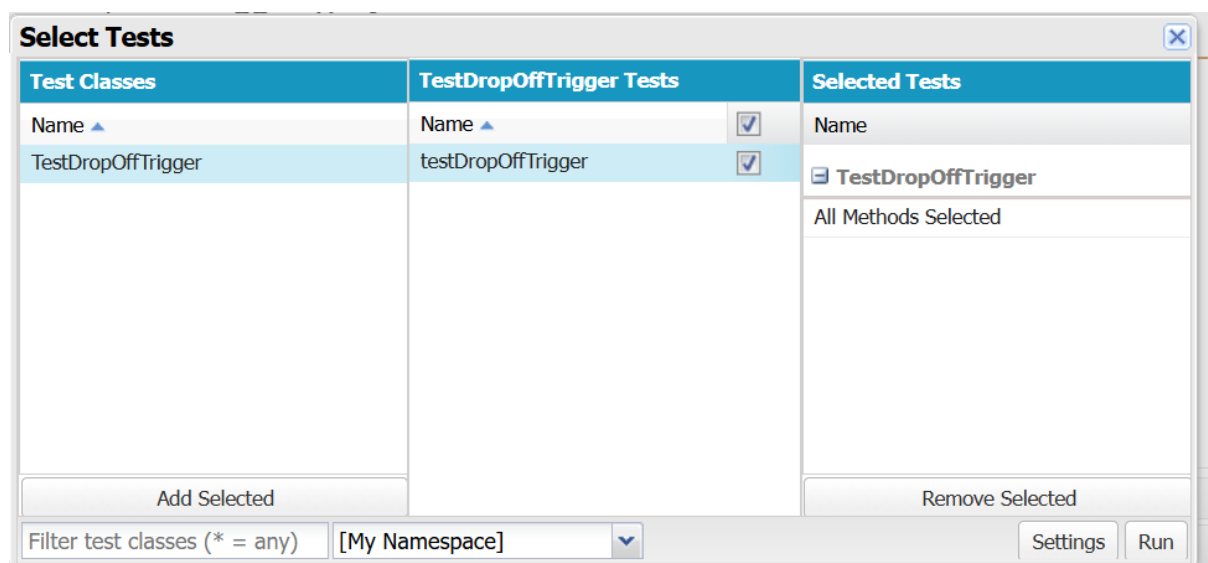
```
}
```

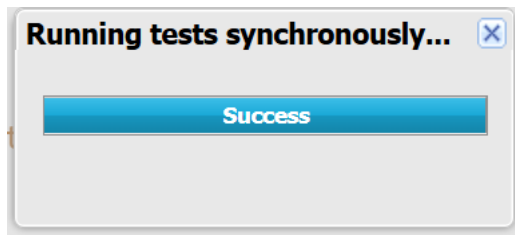
Test Class:

```
@isTest
private class TestDropOffTrigger {
    @isTest static void testDropOffTrigger() {
        distance_calculation__c
            Drop_Off_Point__c drop = new Drop_Off_Point__c(
                Name = 'Test Drop Off Point'
            );
        insert drop;
        Drop_Off_Point__c result = [SELECT Distance__c FROM Drop_Off_Point__c
WHERE Id = :drop.Id];
        System.assert(result.Distance__c != null, 'Distance__c should be populated by
the trigger');
    }
}
```

STEPS:

- Created a Test Record: Created a simple Drop_Off_Point__c record.
- Inserted the Record: Insert the record to trigger the trigger.
- Verified the Update: Check if the Distance__c field is updated by the trigger.
- Go to Setup > Apex Test Execution.
- Click Run after selecting your test.

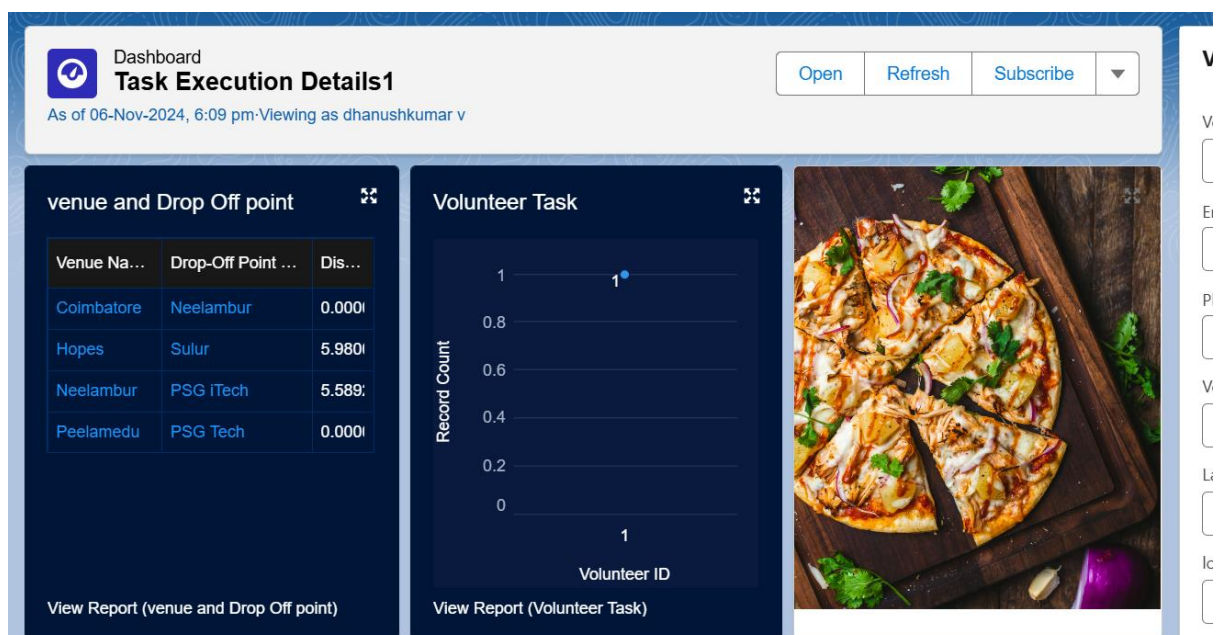




ii. User Interface Testing

User Interface have been tested with various types of data and edge cases.

- **Verify Layout:** Ensure the dashboard loads correctly with all components (charts, reports, tables) visible.
- **Check Data Accuracy:** Validate that the displayed data matches the source reports or records.
- **Test Filters:** Ensure dashboard filters (e.g., date, region) update data correctly when applied.
- **Check Interactivity:** Verify clickable elements (charts, links) lead to the expected actions or pages.
- **Test Responsiveness:** Confirm the dashboard displays correctly across different devices (desktop, tablet, mobile).



Venue Form

Venue Name

Coimbatore

Email

user1@gmail.com

Phone

123456789

Venue Location

Neelambur

Latitude

longitude

Next

6. Conclusion

Summary of Achievements:

The Salesforce Food Supply Project successfully created an efficient, transparent, and scalable system to manage the collection and distribution of surplus food to those in need. Key accomplishments include:

- **Comprehensive Data Management:** Implemented custom objects, tabs, and fields to manage critical data on venues, drop-off points, volunteers, tasks, and execution details, ensuring organized and accessible records.
- **Automated Processes:** Developed flows and Apex triggers for data entry and automation, enhancing operational efficiency by reducing manual input and improving accuracy.
- **Enhanced Collaboration:** Configured user profiles, public groups, and sharing rules to enable secure collaboration among participating organizations while protecting data privacy.

- **Real-Time Monitoring:** Created custom reports and a centralized dashboard integrated with the homepage to provide stakeholders with real-time visibility into project metrics and activities.
- **Improved Decision-Making:** Designed a structured, user-friendly system that streamlined the food distribution process, facilitating quick and informed decision-making.

The project achieved its primary objectives by leveraging Salesforce's platform, resulting in a robust system that supports the mission of providing food to the needy efficiently and transparently. This initiative exemplifies how technology can be used for impactful, community-driven projects.